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## ON THE BREEDING OF CERTAIN BIRDS.

BY DR. ELLIOTT COUES, U. S. A.

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No. 2.

IN the treeless portions of Montana, the streams that meander through the boundless prairies constantly present the feature of "cut-banks," which I mentioned in my last article as the breeding resort of various hawks.\* This furnishes other exceptional instances of terrestrial nidification, which may well be placed on record.

Probably no birds vary more in their modes of nesting according to different circumstances than swallows; and certainly none adapt themselves more readily to their surroundings. On the face of the cut-banks, as would be expected, thousands of cliff swallows fasten their bottle-shaped nests of mud; but who would have anticipated the breeding amongst them of barn swallows, in holes in the ground? In various parts of Montana, where there were no trees, and no breaks in the prairie excepting the "coulés" (ravines) and streams, I frequently saw troops of barn-swallows, and for some time wondered where they bred. At length Mr. Batty, one of my assistants, found some nests of this species, and settled the question. The nests were placed in little excavations on the face of the banks, deep enough to be fairly called "holes," and answering all the purpose of the corner of the rafters, which the bird usually selects. Mr. Batty surmised that in some instances at least, the bird enlarged and adapted, if it did not actually dig out, the excavation; but of this I do not feel sure. It seems more probable that choice was made of the natural indentations of the bank, just as was the case with the hawks already mentioned.

At one of our camps on a small tributary of Milk River, on the boundary line of the United States and British America, two nests of the golden eagle (*Aquila chrysaëtes*) were found within a mile of each other, each capping a piece of cut-bank.

Viewed from the prairie side they seemed, and actually were, to all intents and purposes, placed on the bare level ground; from the reverse aspect the natural instinct of nesting on a crag was

seen to be fulfilled. But one would think that if an eagle were to stoop to nest in such a place, the bird would choose the highest and boldest embankment in the vicinity. Such was not, however, the case. One of the nests which I visited was rather upon the brow of a little hill than the edge of a cliff. The distance from the bed of the stream was no more than an easy gunshot, and the inclination was so slight that I readily walked up the embankment, gun in hand. The nest was composed of sticks, some of which were as large as one's wrist, brushwood and bunches of grass and weeds with masses of earth still adhering to the roots. It was about four feet across in one direction, and three in the other, the shape being suited to the slight projection of ground on which the nest rested; the matted mass of material averaged about six inches deep. The other nest was described to me as considerably larger. Both were empty and apparently deserted. Although I saw no eagles just at this spot, I do not hesitate to identify the nests as those of the species mentioned, for the birds were very frequently — almost every day — seen in the neighboring Sweetgrass Hills. There do not appear to be any bald eagles in the country, and the nests were altogether too large to have been those of any kind of hawk known to occur in the region.

Some years ago, Dr. F. V. Hayden brought us from the mountains a pair of harlequin ducks (*Histrionicus torquatus*), and accompanying the specimens was an egg cut from one of them. This fact, coupled with the date of capture (May 31), led to the inference of the breeding of this species in the Rocky Mountains within the limits of the United States. The past season (1874) I have had the pleasure of establishing the fact. At Chief Mountain Lake, near the heart of the Rockies, where the U. S. Boundary line crosses, I found broods of young harlequins still unable to fly, late in August. Several specimens, including the mother of one of the broods, were secured; the adult male was not observed. What is somewhat unusual for ducks, this brood was found in a clear ice-cold mountain torrent, disporting in a pool at the foot of a cascade. The altitude was about five thousand feet. The character of the stream may be clearly recognized in the fact that it was full of beautiful trout of two species, and was also the home of the water ouzel (*Cinclus Mexicanus*). When disturbed, the old bird flew low over the water, while others sank back quietly into the limpid element, till only the head remained above the

surface — just like grebes; some sought refuge behind and beneath the cascade, screened by the whole volume of water that leaped over the projecting rocks. Another brood was seen swimming quietly in one of the side pools near the lake.

With the harlequins was also breeding a species of *Bucephala*. It was not *B. albeola*, but whether *B. clangula* or *B. islandica* is yet undetermined, as I did not take the old male, and as the young ones cannot be determined without comparison of specimens that I cannot make in the field.

The breeding of the Bohemian waxwing (*Ampelis garrulus*) long remained unknown, and to this day my only records of its nesting on this continent have come from Alaska, whence specimens of the eggs were lately brought. It is a matter of satisfaction to be able to attest its breeding in the Rocky Mountains, on, or at any rate very near, the border of the United States. On the 19th of August, while I was at Chief Mountain Lake (this beautiful sheet of water lies across our line), a Bohemian waxwing was shot by my assistant, Mr. A. B. Chapin, who picked it out of a flock of common cedar birds. It was still in the peculiar streaky stage of plumage which is characteristic of the very young bird, and must have been hatched somewhere in the vicinity. Additional evidence in favor of this induction lies in the fact that the cedar birds were breeding at the same time. Several young ones were shot, and Mr. Chapin secured a nest containing four partially incubated eggs. This was late (Aug. 19) even for so tardy a breeder as the cedar bird is well known to be. But the birds were in mountains, and at a latitude (49°) north of their average breeding range. What with the rare ducks just mentioned, the water ouzels, dusky grouse, and the curious little chief hare, *Lagomys princeps*, to say nothing of the aristocratic Bohemians, our familiar friends were here in very select company.

There are some interesting points, all of which may not be generally known, respecting the range of the flickers in this part of the world. In the Red River Valley, and clear away westward on the parallel of 49° to where the Coteau of the Missouri crosses this line, you get nothing but pure *auratus*. I have shot this nearly to the head waters of the Souris or Mouse River. Throughout the greater part of the Missouri region proper — the immense extent of which must be travelled over to be thoroughly appreciated — the curious “hybrid” form prevails. I never saw a speci-

men that did not show the mixture of *Mexicanus*, from any part of the Missouri water-shed beyond the strict limits of the Eastern Province. But at the Rocky Mountains this mongrel breed runs up north into the Saskatchewan region at least, if not farther. In latitude this is more than abreast of the Mouse River area where *auratus* flourishes untouched with red. I have specimens of various grades of "hybridity" from the mountains where the St. Mary's, the Kootenay (or Kootanie) the Belly and other tributaries of the northern waters arise.

Audubon's warbler (*Dendroæca Auduboni*) breeds in the Rocky Mountains at the locality lately specified. Several very young birds were shot in August.

There is something I have not quite made out respecting the breeding range of Sprague's lark, *Neocorys Spraguei*. The bird can hardly be more abundant anywhere than it is in the country west of the Red River and north of the Missouri Coteau. I certainly saw several thousand last year. The present season, at the site of Fort Union (Audubon's original locality), and thence up the Missouri to the mouth of Milk River, I noticed altogether a few hundred perhaps. But the birds were not common, and in all the country west of this I saw none at all until I came upon the head of Milk River, just at the ridge that divides these waters from those of the Saskatchewan. There, among the foothills of the Rockies, the species reappeared. Much the same peculiarity attaches to the breeding range of Baird's bunting. This bird is everywhere over the Mouse River region, and the type came from the Upper Missouri, but during the summer just passed I have failed to find a single one in the whole country from the mouth of the Yellowstone to the headwaters of the Saskatchewan.—*Fort Benton, Montana, Sept. 9, 1874.*

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## THE COLOSSAL CEPHALOPODS OF THE NORTH ATLANTIC. II.

BY PROF. A. E. VERRILL.

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AFTER the first part of this article was printed, I received an interesting letter from the Rev. Mr. Harvey, who, in accordance with my request, has made a new examination of the large arm of